

**REMARKS**

Claims 30-32 and 62-64 are rewritten in allowable form as new claims 65-67 and 68-70.

New claim 71 is added to distinguish the invention from the disclosure of Rogers under 35 U.S.C. § 102. Claim 71 recites a plurality of burners that are configured to fire into a bottom region of the shaft in radial directions. Claim 71 further recites the device that is configured to direct a jet of hot gas into an upper region in a non-radial direction to induce a swirl. Applicants respectfully submit that the apparatus of Rogers does not include burners that fire into a bottom region of the shaft in radial directions as recited in claim 71. Applicants further submit that the apparatus of Rogers would be rendered inoperative for its intended purpose of swirling the descending material to the forehearth 3 if it were modified by a substitution of radially firing burners in the bottom region of the shaft, whereby new claim 71 also distinguishes the invention from the prior art under 35 U.S.C. § 103.

New claim 72 calls for the shaft to be tapered radially inward from the upper region to the bottom region. If the shaft of Rogers were tapered radially inward, the helical ledges would block material from descending through the shaft. New claim 73 calls for the burners at the bottom of the shaft to be premix burners, with the swirl-inducing device at the upper region being a nozzle mix burner. The burners of Rogers are all nozzle mix burners. Accordingly, Applicants respectfully submit that each of claims 72 and 73 distinguishes the invention still further from the prior art under 35 U.S.C. §§ 102 and 103.

New claim 74 is similar to claim 71, but further recites a control system that is configured to fire each of the lower burners with a first individual heat input, and to fire the upper burner with a second, lower individual heat input. The prior art patent to Rogers does not disclose any difference in heat input between upper and lower burners. By stating that the burners of Rogers "can be" configured to fire at different heat inputs, the Office Action effectively acknowledges

that they are not disclosed with that feature, and thus requires a modification of Rogers to yield that feature. However, Applicants respectfully submit that the prior art would not have made that feature of the claimed invention obvious under 35 U.S.C. § 103.

New dependent claims 75 and 76 are similar to new claims 72 and 73, and distinguish the invention from the prior art for at least the same reasons.

In view of these remarks, applicants respectfully submit that new claims 71-76 are allowable along with claims 65-70, and allowance is requested.

Respectfully submitted,



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